California Environmental Protection Agency
Department of Pesticide Regulation

Pesticide Air Initiative: Successful Integrated Pest Management Projects

Integrated pest management (IPM) is a long-term, preventive approach to managing pests that employs biological, cultural, and chemical control practices when needed. IPM is a decision-making process based on pest detection, identification, monitoring, and knowledge of pest biology and field ecology. Pest management techniques are selected and used in a manner that benefits consumers, workers, neighbors, the environment, and agriculture without the complete reliance on pesticides. Examples of IPM techniques include use of cover crops, crop rotation, insect baits, pheromones, pest exclusion, release of natural enemies, and the selective, targeted use of pesticides. Incorporating IPM strategies when managing pests will reduce, and potentially eliminate, exposure to pesticides.

Historically the Department of Pesticide Regulation (DPR) has had a successful grant program that developed and promoted IPM systems that reduced or completely prevented environmental pollution from pesticides. The grant program funded three types of projects: research, demonstration, and "Alliance" projects. Research projects focused on developing scientifically defensible, effective, and economically feasible IPM strategies that could be implemented in the agricultural or urban environment. Demonstration projects were designed to showcase scientifically sound IPM systems to the community. Alliance projects were demonstration projects on a larger scale focused on bringing together a broad coalition of stakeholders to work collaboratively to promote an IPM system. The grant program was designed to address several DPR priority areas including, but not limited to:

- Alternatives to pesticides in the following categories:
  - Organophosphates, carbamates, and Proposition 65 pesticides
  - Toxicity Category I products
  - Restricted use materials
  - Methyl bromide and other fumigants

- Projects that reduce worker exposure to pesticides
- Pest management projects that address the protection of surface and ground water
- IPM projects in public schools and other public buildings.
- IPM for residential pest management in urban and suburban areas.
- Alternatives to address secondary pest problems that may arise after moving to a pest management system that relies on reduced-risk approaches.
- Development of reduced-risk practices for managing new or exotic pests.

From 1995 to 2003, DPR awarded about $8 million for projects conducted in over 38 counties. Projects served a wide array of urban and agricultural pest control needs. In agriculture, DPR-funded projects demonstrated IPM practices in almonds, wine grapes, walnuts, prunes, peaches, plums, citrus, and other commodities—crops that are now planted on hundreds of thousands of acres in California. Some successful projects include:

- The Dried Plum Alliance, established in 1998, eliminated winter applications of organophosphate insecticides in 33 demonstration orchards that account for 11 percent of California's dried plum acreage. Reduced-risk insecticides and dormant oils replaced the organophosphates in these trials. This alliance conducted 24 educational meetings within the industry. This research and outreach have resulted in potential savings for growers estimated at nearly $1 million annually.
- The Almond Pest Management Alliance was formed in 1998. The alliance created an IPM program that supports non-pesticide solutions for longstanding problems. Almond growers realized a reduction in pesticide use of over 4 million pounds in 5 years, in spite of an increase in almond acreage over the same period. Almond growers point to diazinon as an example of the alliance IPM effort: diazinon use fell from 115,000 pounds in 1997, to 63,000 pounds in 2001--a 45 percent drop. Growers now use traps, reduced-risk chemicals that interrupt the mating process (i.e., pheromones), and electronic equipment to monitor orchards. They also plant grasses to attract beneficial insects that eat pests common in almond orchards.
- The Pear Alliance was established in 1997. California ranks second in U.S. pear production, with nearly 300 growers statewide. Grant funding from DPR encouraged many pear growers to adopt "puffers" to control their most destructive pest, the codling moth. Puffers are devices that dispense a pheromone similar to that of female codling moths. The scent attracts and confuses male moths, preventing them from mating, thereby reducing pest populations. "Puffer" mating disruption has replaced up to four applications of organophosphate insecticides annually. Over a three-year period, growers with more than 3,000 acres of pears reduced use of organophosphates by 65 percent in Lake County, 75 percent in the Sacramento region, and 87 percent in Mendocino County.

Some of the groups that came together to work on the Alliance projects still exist today, working to improve their IPM systems and continue their education and outreach efforts. The Almond and the Tree Fruit Alliances are two examples. DPR staff continue to work with these groups to promote IPM through demonstration events, outreach materials, and innovative application technologies. Further work with our alliance partners will also benefit DPR's efforts to reduce volatile organic compound emissions in California.